

Delaware Multi-Pollutant Regulation

Development Work Group

Citizens For Clean Power

April 6, 2006

Why We Are Here!

The Citizens For Clean Power (CCP) exists to:

- Establish and facilitate a strong line of defense for protecting the public health of its citizens.
- Develop a clear and sustainable goal of public awareness as regards regulatory mechanisms in pursuit of public health and safety

CCP Platform

Citizens For Clean Power is a grass roots citizens coalition formed to call for a regulatory action that will significantly reduce emissions at Indian River so that our generation and future generations of Southern Delaware's citizens and our natural environment will no longer be subjected to this unnecessary and serious assault on our health when technology presently exists to profoundly mitigate this pollution.

The Public Health Dilemma

Bottom line not corporate profit but public health

- Based on TRI figures from 2002, scorecard.com ranks Sussex in the top 20% of the most toxic counties in the country.
- The American Lung Association graded air quality in all three Delaware counties as F in 2005; Sussex and Kent received a D for particulates.
- A 2000 Harvard Public Health Study showed that disease and mortality within a 30-mile radius of plants like these is 5 times greater than in the general population.

The Public Health Statistic

- EPA's ABT Associates' Report Estimates That Fine Particulate Pollution From Power Plants:
 - Shortens The Lives Of 95 Delawareans.
 - Causes 13,106 Lost Work Days.
 - Results In 87 Hospitalizations.
 - Causes 2,256 Asthma Attacks Annually - 99 Of Which Are So Severe They Require Emergency Room Visits.
- Substantial Mercury Reductions Would Mitigate:
 - IQ Impacts.
 - Neurological Damage In Children.
 - Cardiovascular Damage And Mortality In Adults.
 - Benefit Estimates Range From \$10,000 To \$100,000 Per Pound Of Hg Reduction.
- Childhood Asthma Rates In Delaware Have Risen Dramatically From 5.8% To 8.5% In The Past Seven Years.

Some Established Basics

- Scrubbers Can Remove SO₂ At A Cost Of \$300 Per Ton.
- The Office Of Management And Budget Estimates The Cost To The Public Is \$7000 Per Ton Of SO₂ Emissions.
- 2004 Emissions In Delaware Were Over 30,000 Tons.

This is an appropriate point to explore in some depth the effects and facts and to propose that appropriate regulation can meet and exceed reduction goals that are established by the current standard...

CCP Position

Seeks 90% or more reductions of SO₂, PM, and Mercury.

Seeks 80% or more reduction of NO_x.

Address all coal, petroleum coke, and heavy fuel oil fed units

Address all mercury emissions.

Seeks a prohibition of mercury trading.

An accelerated compliance schedule.

Clean Air Mercury Rule and Delaware

Current Emissions (2004)	2010 – Allocated cap	2018 – Allocated cap	CCP
366.3 lb	144 lb (0.72t)	56 lb (0.028t)	36.6 lb
Reduction	60.7%	84.7%	>90%
IR 189 lb	90.8 (51.9%)	36.1 (80.9%)	18.9 lb
EM 177.3 lb	46.0 (74.1%)	18.2 (89.7%)	17.7 lb

Facility Emissions

	Fuels	Mercury (lb) 2004	SO2 (tons) 2005	NOx (tons) 2005
Edge Moor 718MW	Coal / Oil	177.3	9,236.6	3,160.4
Indian River 767MW	Coal	189	20,715.7	7,047.6
McKee Run 136MW	Heavy Fuel Oil		530.2	211.4
Hay Road 1052MW	Natural Gas		34.2	703.2
VanSant 39MW	Natural Gas/Diesel		2.4	5.2
Beasley 50MW	Natural Gas		0.6	2.4
		366.3	30,519.7	11,130.2
Invista Seaford 27MW	Coal	42	5,303**	777.8**
Premcor Refinery 311 MW	Petroleum Coke/ Heavy Fuel Oil	17	60.3	204.4
NGR Energy Center 103MW	Coal/Natural Gas	8.2		10.8
CitiSteel		39.1		
CAIR 2009				4,166 (62.6%)
CAIR 2010			22,411 (26.6%)	
CAIR 2015			15,687 (48.6%) no set aside	3,472(68.8%) no set aside

How should reductions be achieved?

Eliminate mercury trading option

- Why sell credits upwind that will dump downwind into Delaware?
- Why use credits to allow increased emissions in Delaware?
- The goal is to reduce mercury loadings in DE, therefore trading doesn't make sense.

When should reductions be required?

Most major hardware installations will occur by 2010 to meet CAMR & CAIR.

2015 for CAIR phase II.

Waiting until 2018 isn't justified.

DNREC needs to set a more stringent timetable.

- Let's get it all done 2010 - 2012

Benefits of Faster Implementation

Mercury reduction benefits include reduced IQ impacts in children, reduced cardiovascular effects and mortality in adults, and a range of benefits from \$10,000 to \$100, 000 per pound of mercury reduction.

The cost of SO₂ controls are \$125-300/ton. According to OMB, every ton of SO₂ costs the public \$7000 in higher costs.

An independent analysis of Maryland's proposed Healthy Air Act shows that the health and economic benefits of air pollution reduction, including the saving of 96 lives per year, far outweigh the costs by nearly 9:1.

Other State Rules

lb/MMBtu	CCP	New Jersey	MD Healthy Air Act	MD Clean Power Rule	Mass.	STAPPA/ ALAPCO Model
SO ₂	0.13 90%	0.15 (89.1%IR)	83% 2010 90% 2015	80% 2010 0.225 2010 (82.7% IR)		95% 0.15 1.5 lb/MWh
NO _x	0.07 80%	0.10 dry (71.5%IR)	67% 2010 80% 2015	69% 0.125 2009 (64.2% IR) 0.10 2015		0.07-0.1
Mercury	5.39E-7 5.42E-6 lb/MWh 90%	3 mg/MWh or 90% (87.8%I R)	90% 2010	75% 2010 (80% 2010 90% 2015)	85% 2008 7.5E-6 lb/MWh 95% 2012 2.5E-6 lb/MWh	90-95% 0.006- 0.0025 lb/GWh
PM	0.03 90%	0.03				0.015-0.03

Meeting the Standards

lb/MMBtu	CCP	Conventional	IGCC	Electrolytic Catalytic Oxidation
SO₂	0.13 90%	0.12 - 0.15 Scrubber	0.022 (98.4% IR 1.38)	98%
NO_x	0.07 80%	0.07 - 0.15 Selective Catalytic Reduction	0.07 (80% IR .35)	90%
Mercury	90% 5.39E-7	80 - 95%	90 - 95%	80 - 90%
PM	0.03 90%	0.01 - 0.03	0.0076	95%

Integrated Gasification Combined Cycle (IGCC)

**DNREC has already developed standards for the
Motiva Unit**

**Standards to be transferred to any new units with
Hg reduction required**

Premcor (no controls)

Mercury IGCC limits

- Wepower Elm Road $5.6\text{E-}7$ lb/MMBtu (permit)
- Wabash $5.334\text{E-}7$ lb/MMBtu (90% assumed)
- Polk $5.471\text{E-}7$ lb/MMBtu (90% assumed)

Today's air pollution wastes are tomorrow's landfill problems.

SCR slip ammonia can help leach metals from fly ash.

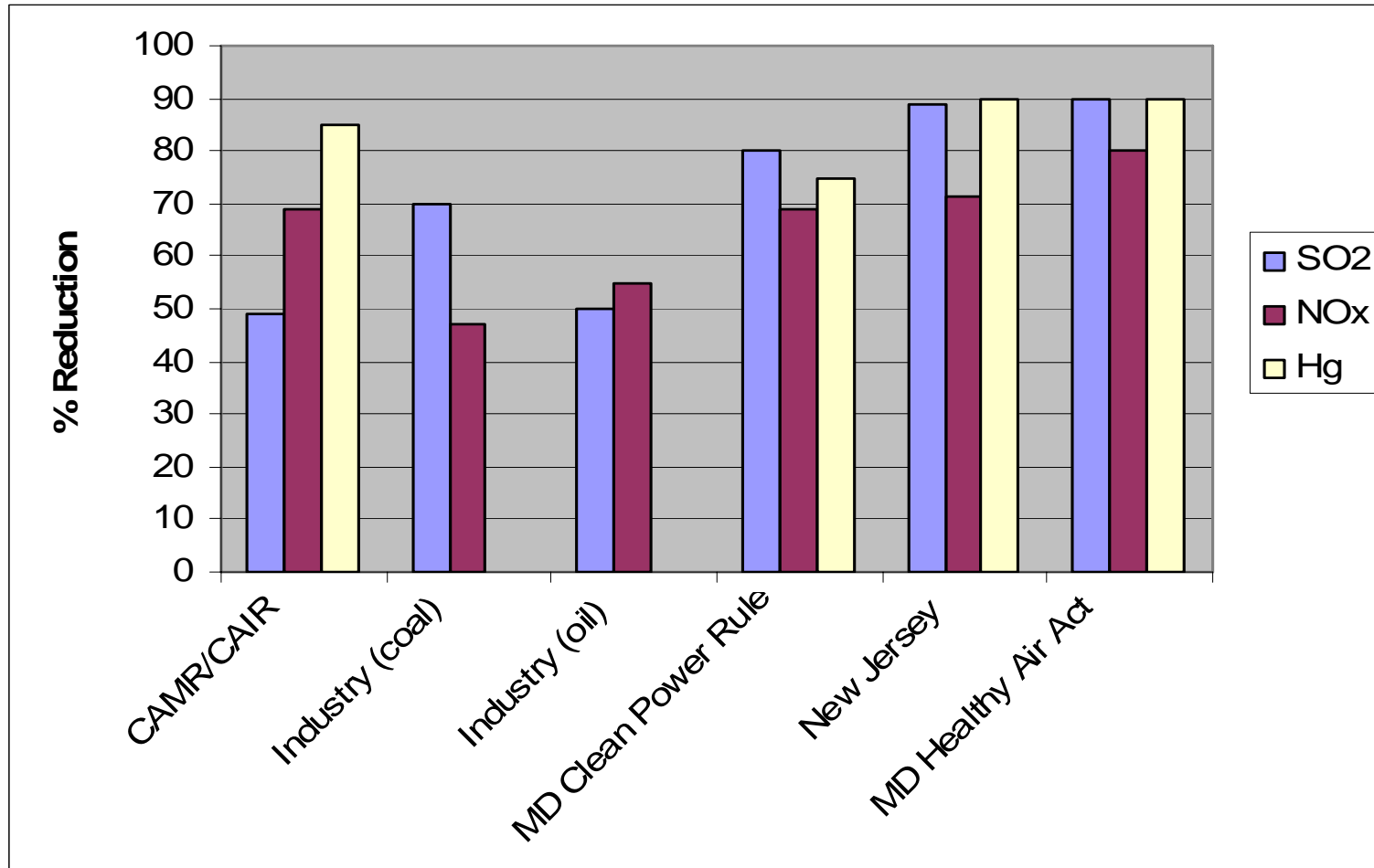
SOx calcium sulfate waste used in wall board can leach mercury and arsenic when placed in construction landfill.

Mercury reemission from carbon adsorbents is not measured by leach tests.

State will need to improve landfill design requirements to manage these wastes properly.

State special or hazardous waste designations.

Summary Comparison



How do we differ?

CAMR/CAIR

- Emission Trading
- Only a trading balance is needed; Not reductions.
- Each unit has a different reduction goal
 - SO₂ 40-65%
 - NO_x 61-80%
 - Hg 80-90%
- Reductions delayed or may not happen

CCP

- NO TRADING
- Known schedule for installation
- Fixed goals for reduction efficiency
 - SO₂ 90% -12131t
 - NO_x 80% -1141t
 - Hg 90% - 17.7 lb
 - PM 90%
- No delays

Why its Important.

The purpose of this regulation is to protect the health of all Delawareans.

Application of standards consistent with our surrounding States would have significant health benefits.

The effort should not be a balancing of corporate profits and public health, but to rectify a long standing injustice.

Incentives for further reductions are needed.

Public Health Vs. Company Profit

Not an issue of public health vs. rising consumer rates but one of public health vs. the extent of company profit.

- Presently, electricity rates determined by price of electricity on the wholesale market, a factor of the cost of power from the most expensive sources.
 - The Washington Post reported in the second week of March that "low cost coal fired and nuclear plants are able to sell power at the same price as much more expensive natural gas fired plants."
 - Power Daily (1/18/05) reported that Indian River production costs (fuel plus operation and maintenance) were \$33.07 MWh while NRG's Vienna oil fired unit costs \$84.98 MWh.
- By 2004 calculations the cost of production for coal-fired units with strict environmental controls was estimated at \$46-48 per MWh (EPRI, 2004; see attachment).
 - **NOTE** that even with sophisticated controls, units like the ones at Indian River will remain very profitable.
- Clean up need not and should not cost consumers a penny.
- Having poisoned DE's citizens since the inception of the Clean Air Act in the 1970s, the responsibility and cost of emissions control should be and can affordably be borne by NRG and Connective alone.

Delaware's Economic Health

Without dramatic improvements, Sussex County's economic health is likewise at risk. Clean up at Indian River will mean:

- Vastly reduced health care costs and increased productivity due to less health-related absenteeism.
 - Maryland estimates 3.5 billion dollars in savings to the state annually from the emission reductions the Healthy Air Act will legislate.
- Local tourism industry's health maintained.
- Real Estate development and high property values maintained.
- Improved agricultural production.
- Improved commercial and recreational fishing.
- Possibly significant revenue stream to the state from wind farm development off the coast.
 - 150 MW unit presently being built in Galveston bay will generate 26 million in lease revenues over a 30-year period.
 - Available space off the Delaware coast could potentially produce 26 times that amount while also filling all of Delaware's future energy needs pollution free.

The Bottom Line

CCP Requirement

- Acceptable Emission Thresholds To Include:
 - SO₂ Reductions - 90% Or More.
 - NO_x Reductions - 80% Or More.
 - Hg Reductions - 90% Or More.
 - PM_{2.5} Reductions - 90% Or More.
- No Hg trading.
- Regular Stack Testing And Public Reporting.
- 2010 Compliance.
- **Coal Gasification Unit Acceptable Only As A Replacement For The Existing Facility.**
- If New Future Power Generation Capacity Required For Delaware:
 - Explore Clean Renewable Offshore Wind Sources Or Other Developments In Clean Power Generation.
 - Delawareans **Do Not** Need A Long Term Contract To Purchase Coal.

Extended Concern

Though we realize this is an air quality regulatory action, we would be remiss not to mention concerns regarding the Indian River plant that are long overdue for DNREC investigation and action.

- A Study Of Possible Nitrate Contamination At The Site.
- A Study Of Possible Heavy Metal Contamination (Especially Hg) From The Unlined Fly-Ash Storage Facility Maintained On Site.
- A Study Of The Extent Of Mercury Poisoning In The Human And Fish Population Near The Site.

Conclusion

Citizens For Clean Power does not think this regulation should balance industry concerns and cleanup efforts, barely accommodating the new federal stipulations. In line with the regulations established or being established in surrounding states and the long history of the poisoning of the public health that has taken place in Delaware, we believe that a profound imbalance should be redressed now as completely as the current technology allows, especially since coal-fired units will remain profitable even should such clean-up be required.